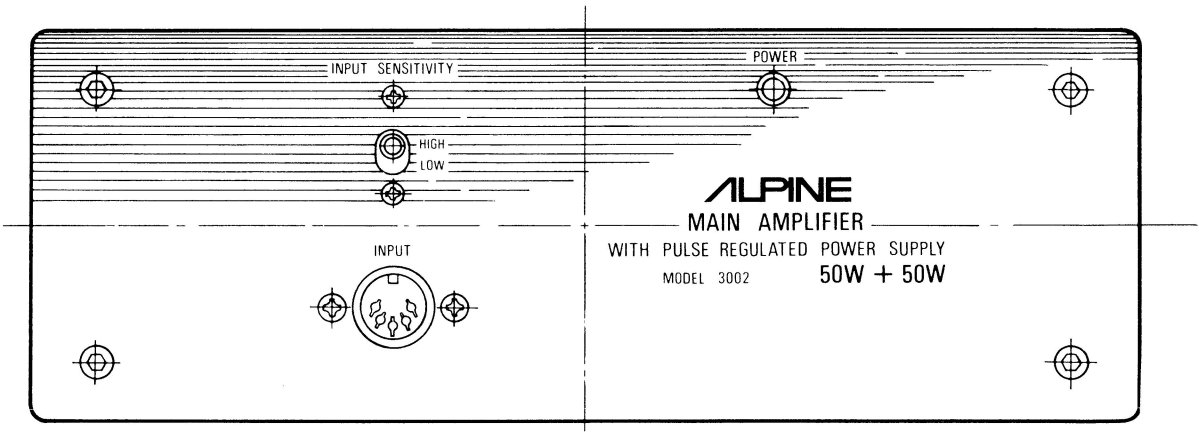
ALPINE SERVICE MANUAL

Main Amplifier
With Pulse Regulated Power Supply



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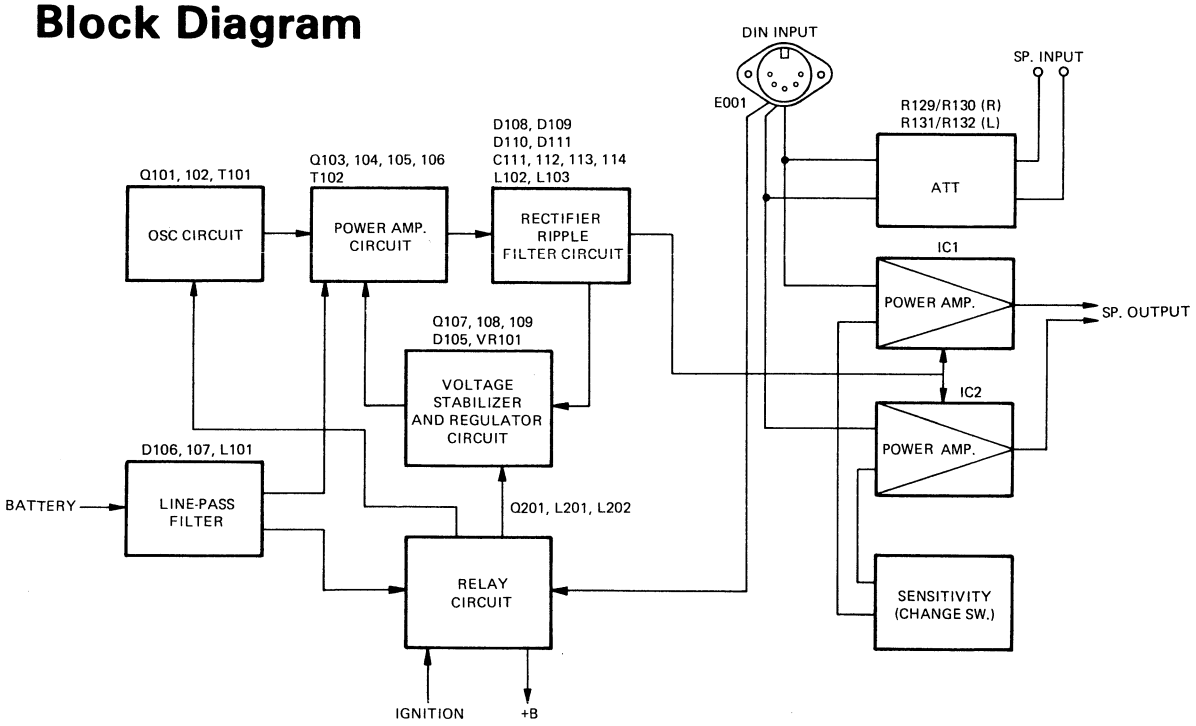
Specifications

Power Source	14V D.C. (11 to 16V)
Power Output	More than 43W (4 ohm, 30 Hz to 20 kHz, 0.2% THD)/ch
Distortion (T.H.D.)	Less than 0.2% (4 ohm, 30 Hz to 20 kHz, 43W x 2)
IM Distortion	0.2% (4 ohm, 500mW to 43W IHF, Din Input)
Frequency Response	
Din	20 Hz to 55 kHz (±1 dB, 4 ohm, 1 kHz)
Speaker	20 Hz to 35 kHz (±1 dB, 4 ohm, 1 kHz)
Frequency Range	30 Hz to 20 kHz (0.2%, 4 ohm, 43W IHF)
Input Sensitivity (High/Low Impedance)	
Din	350mV/800mV ±1.5 dB, 10K ohm (Main Amp, 4 ohm, 43W)
Speaker	1.5V/3V ±1.5 dB, 100 ohm (Power Booster, 4 ohm, 43W)
Damping Factor	More than 45 dB (Lead Wire Terminals)
Signal to Noise Ratio (High/Low)	More than 80 dB (Full Power, 4 ohm)
Load Impedance	4 to 16 ohm
Dimensions	202(W) x 72(H) x 198(D) mm
Weight	2 kg

Block Diagram



Parts Locations and Disassembly Instruction

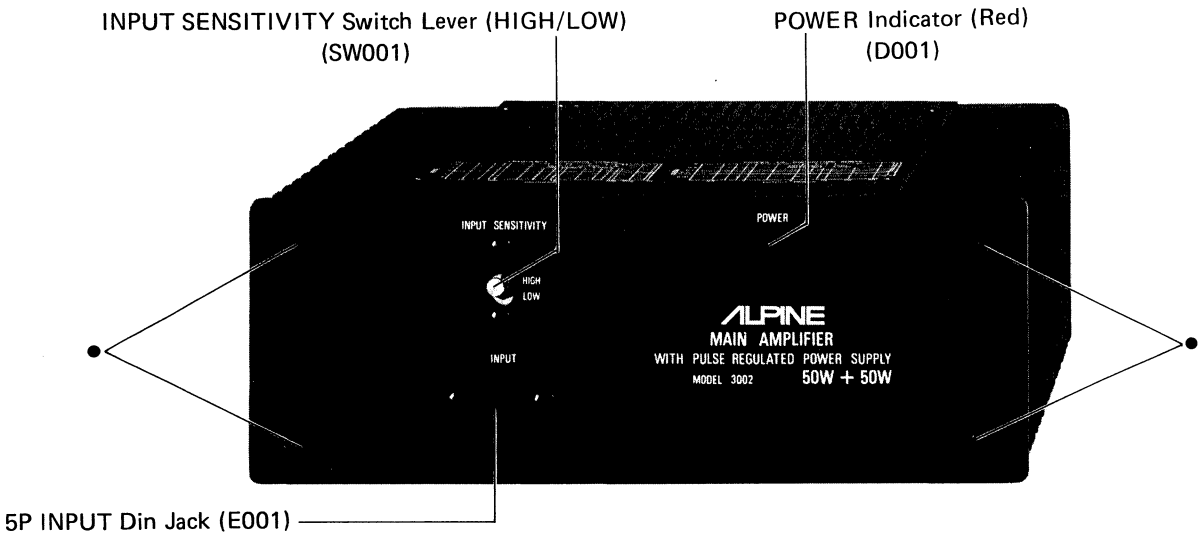


Figure 1

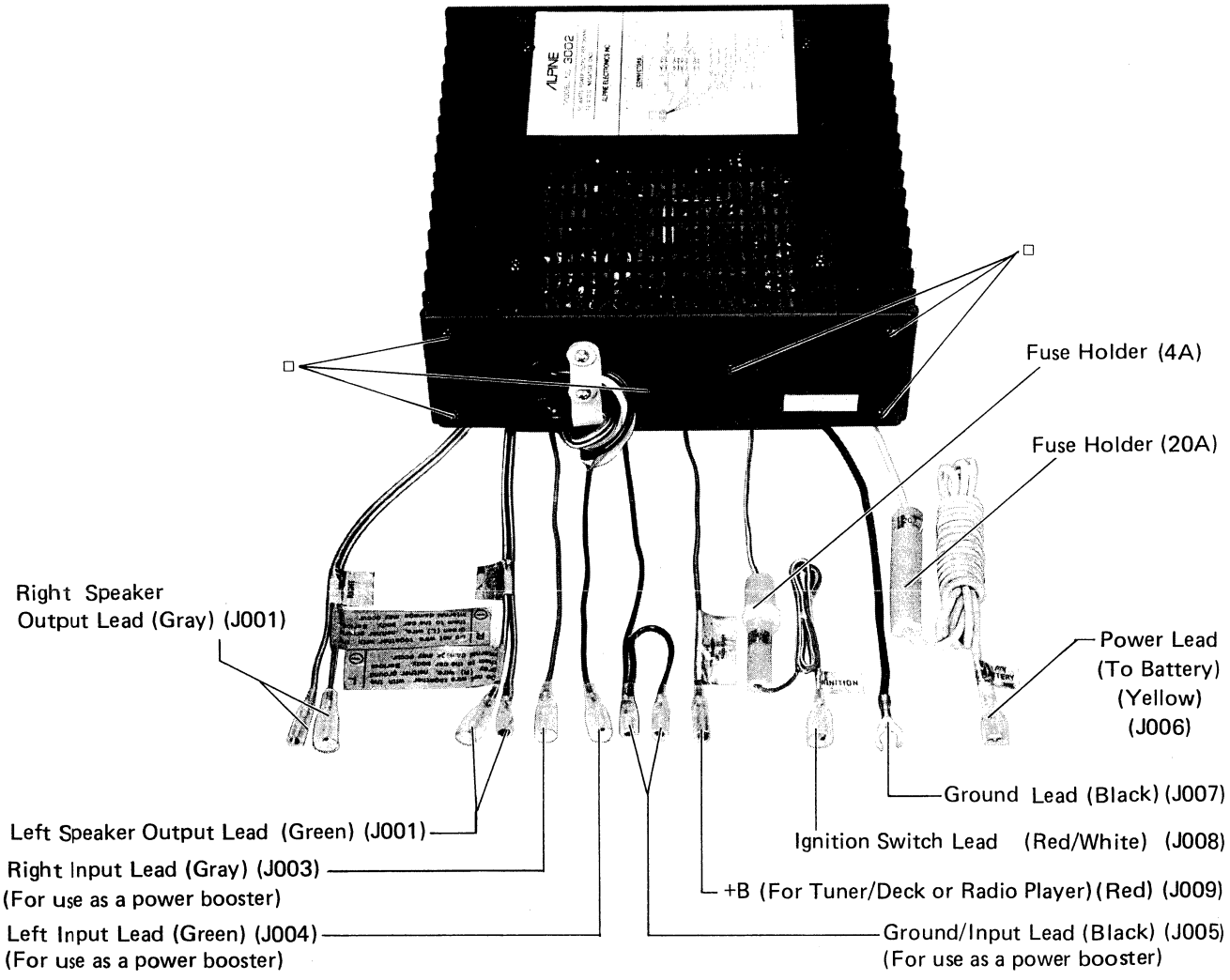

Fuse Holder (4A)
Fuse Holder (20A)
Right Speaker
Output Lead (Gray) (J001)
Power Lead
(To Battery)
(Yellow)
(J006)
Ground Lead (Black) (J007)
Left Speaker Output Lead (Green) (J001)
Ignition Switch Lead (Red/White) (J008)
Right Input Lead (Gray) (J003)
(For use as a power booster)
+B (For Tuner/Deck or Radio Player) (Red) (J009)
Left Input Lead (Green) (J004)
(For use as a power booster)
Ground/Input Lead (Black) (J005)
(For use as a power booster)

Figure 2

1. **Removal of Front Panel**
   (1) Remove four screws marked "●" as shown in Figure 1.
   (2) Take care of lead wires with an input sensitivity switch, an input jacks and a power indicator.

2. **Removal of Top & Bottom Covers**
   (1) Remove four screws marked "○" as shown in Figure 3, and the top cover can be removed.
   (2) Remove four screws marked "■" as shown in Figure 4 and the bottom cover can be removed.

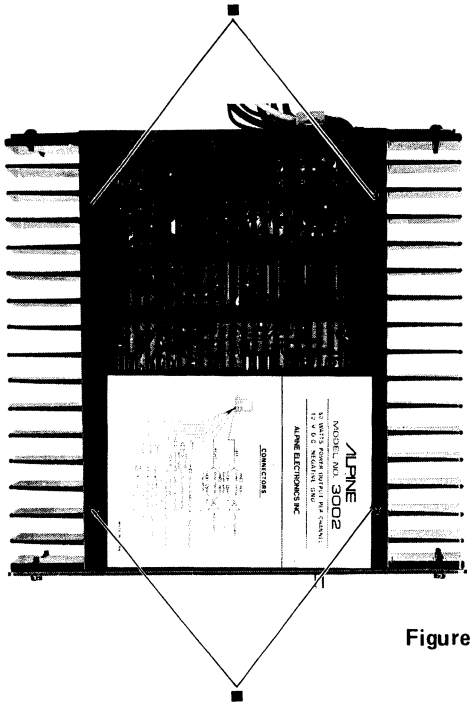


Figure 4

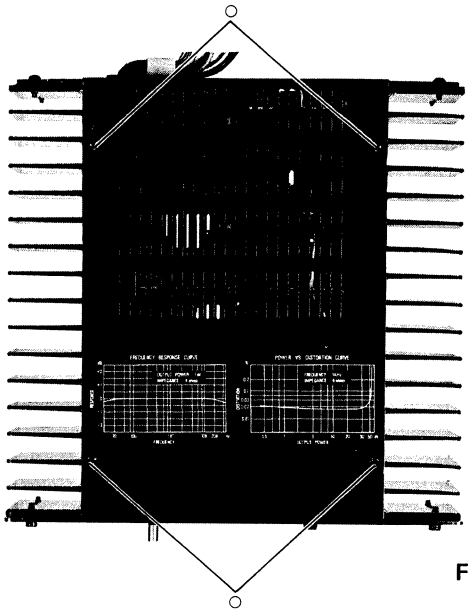


Figure 3

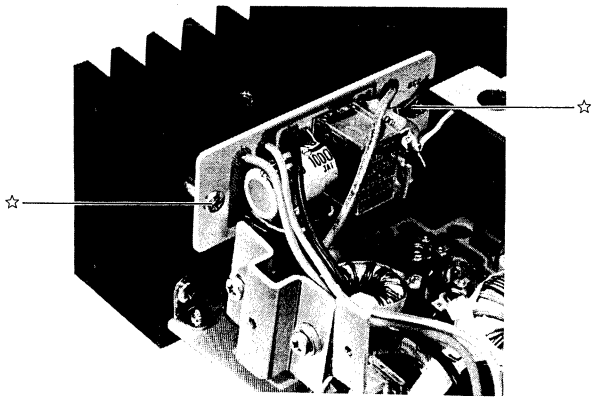


Figure 5

3. **Removal of Rear Panel**
   (1) Remove six screws marked "□" as shown in Figure 2 and the rear panel can be removed.

4. **Removal of Relay P.C. Board**
   (1) Remove two screws marked "☆" as shown in Figure 5 and the relay P.C. Board can be removed.

5. **Removal of Amplifier P.C. Board**
   (1) Remove four screws marked "★" as shown in Figure 6.
   (2) Remove eight screws holding two ICs and transistors with the heat sink.
   (3) The amplifier P.C. Board can be removed by itself.

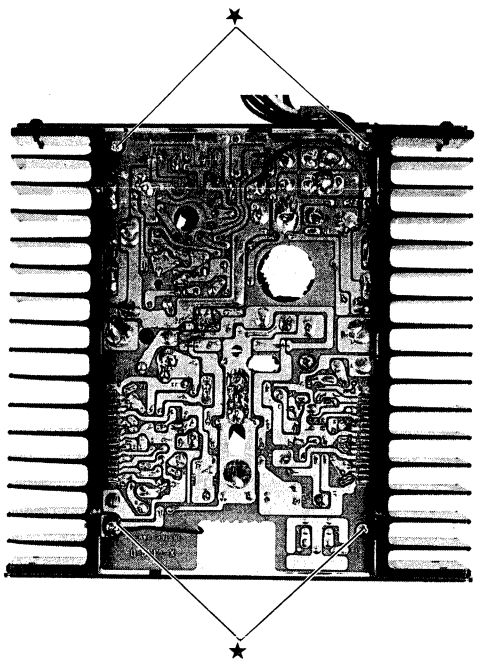


Figure 6

Adjustment Procedures

- **Output Voltage Adjustment**
  (Output Terminal: No load)
  (1) Set the DC supply voltage to 14V.
  (2) Connect a VTVM to TP 3 and TP 4. (Figure 6)
  (3) Rotate the semi-fixed variable resistor (VR102) to be 55.0V DC on the voltmeter.

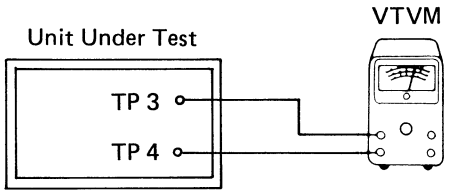


Figure 6

- **Cut-Off Circuit Adjustment**
  (1) Set the DC supply voltage to 10.40V.
  (2) Connect an oscilloscope and a mili-voltmeter to TP 1 and TP 2 (Figure 7)
  (3) Rotate the semi-fixed variable resistor (VR101) fully counterclockwise.
  (4) Read voltage on the mili-voltmeter and its reading is at 0 dB point. (Figure 7)
  (5) Rotate the VR101 clockwise slowly and adjust it to be −1 dB down from voltage as indicated in above step (4).

Range at 30V or 50V
(Read this voltage value to be at 0 dB point.)

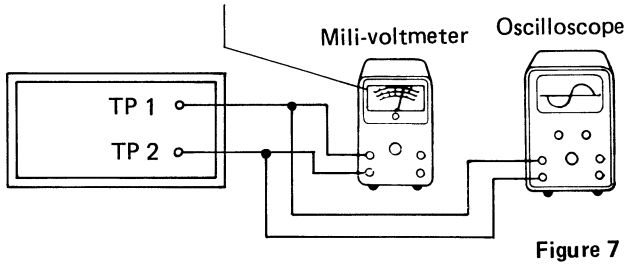
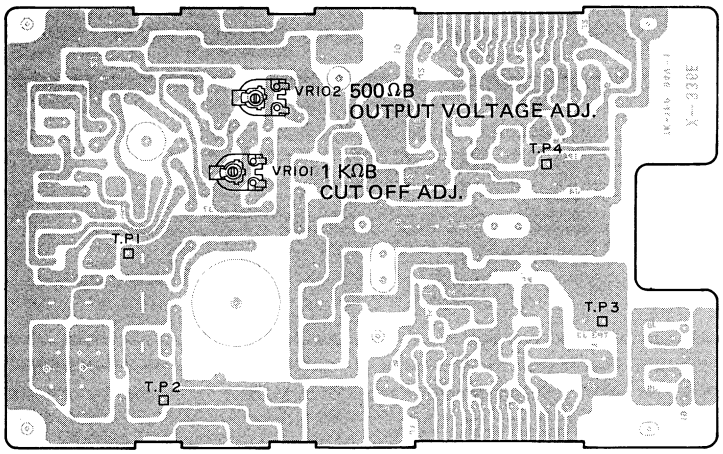


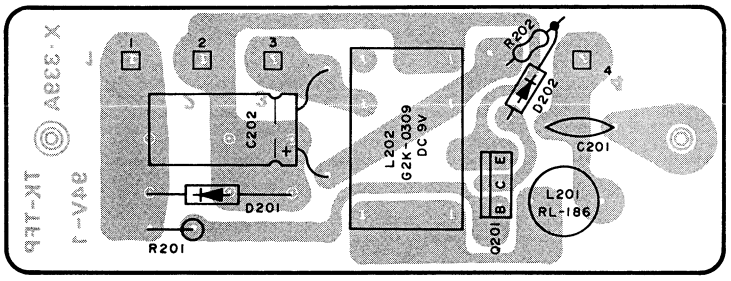
Figure 7

Adjustment Location

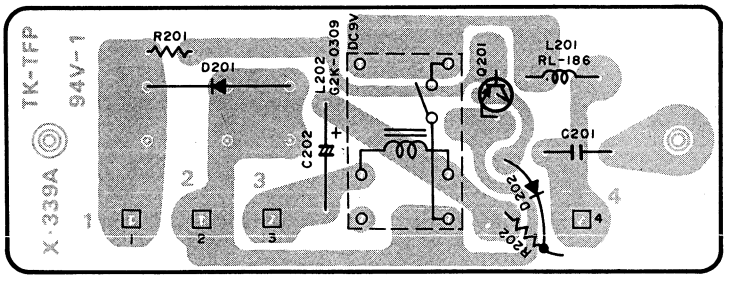


Printed Circuit Boards

Relay P.C.Board

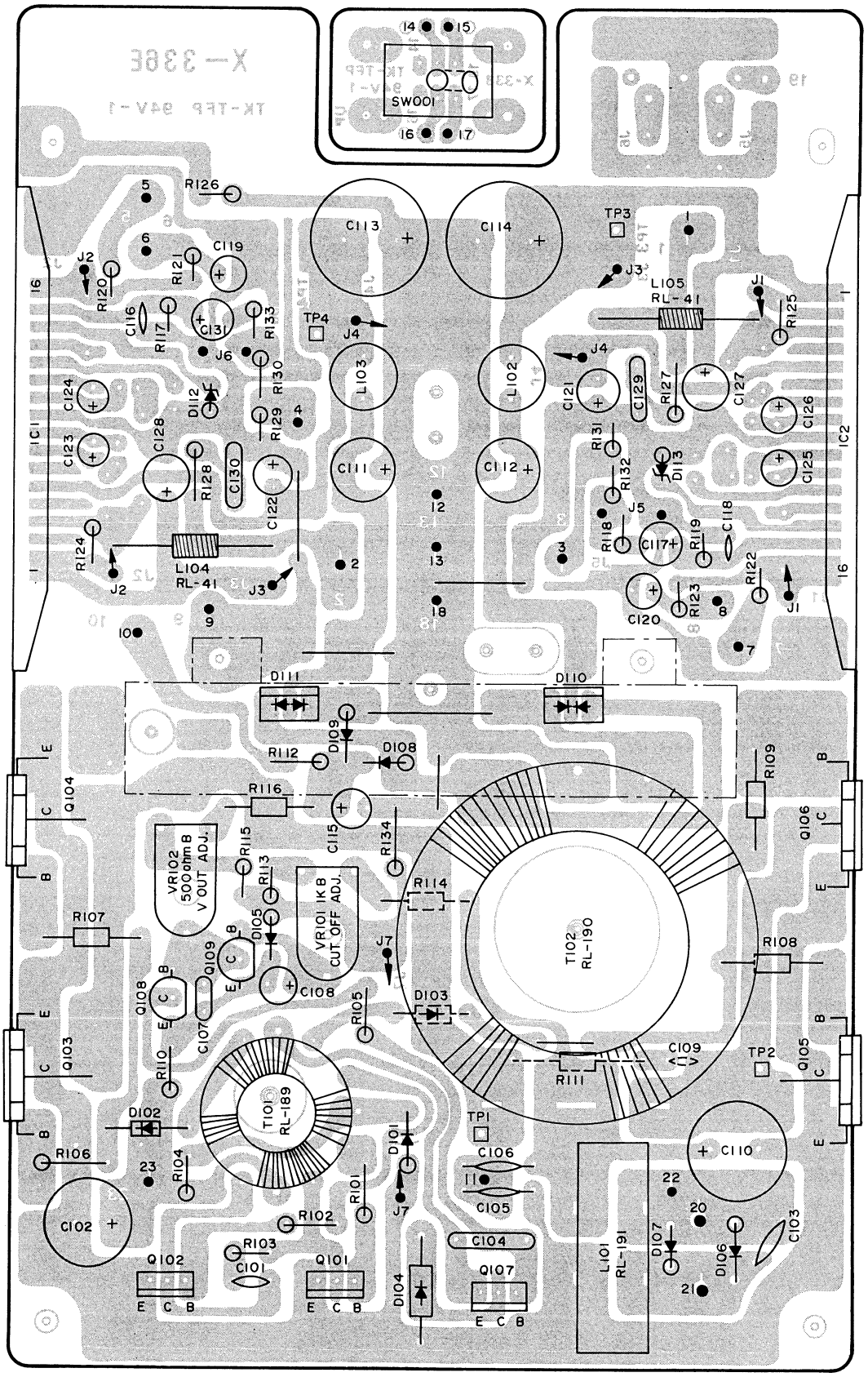


Top View



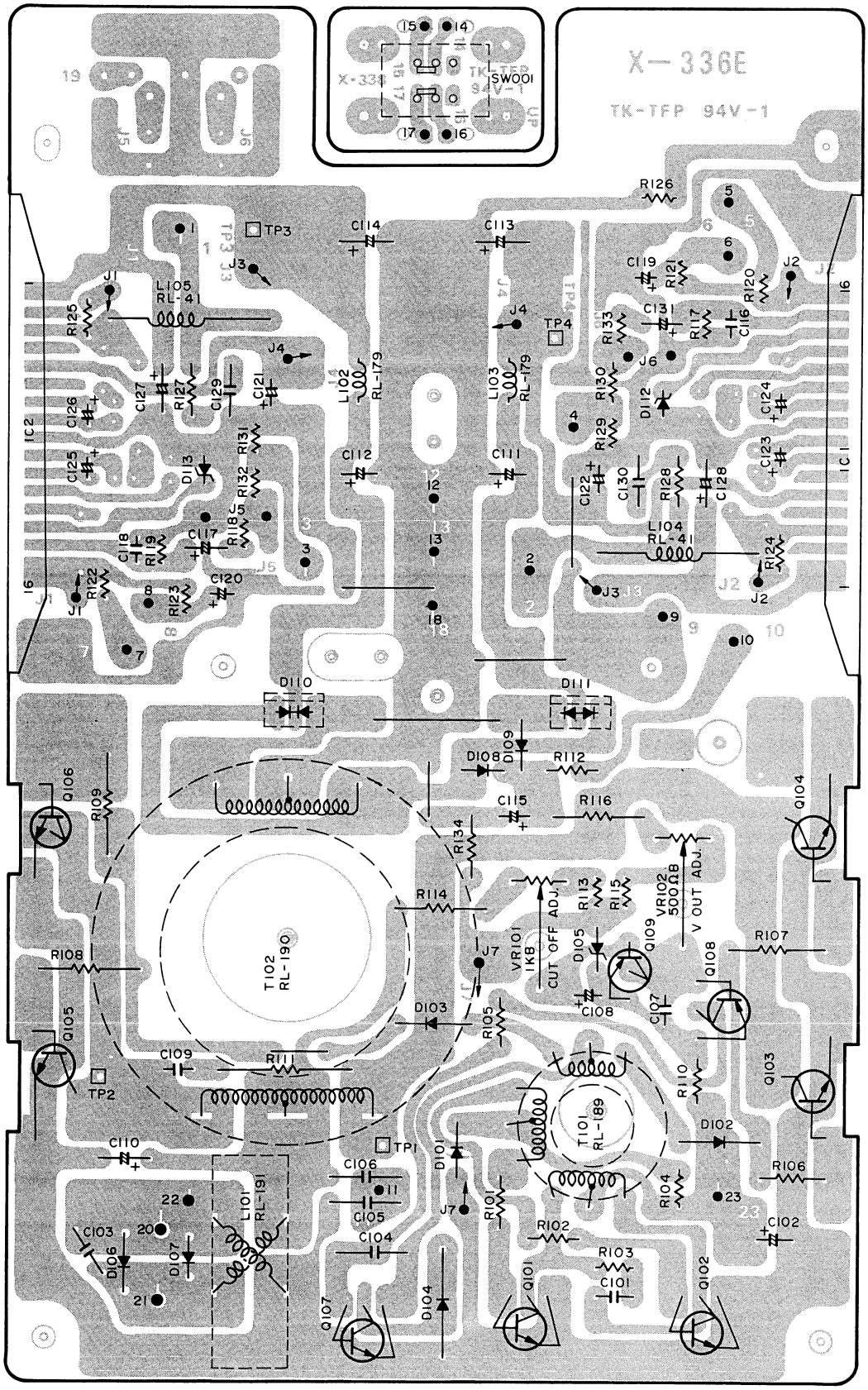
Bottom View

Amplifier P.C.Board



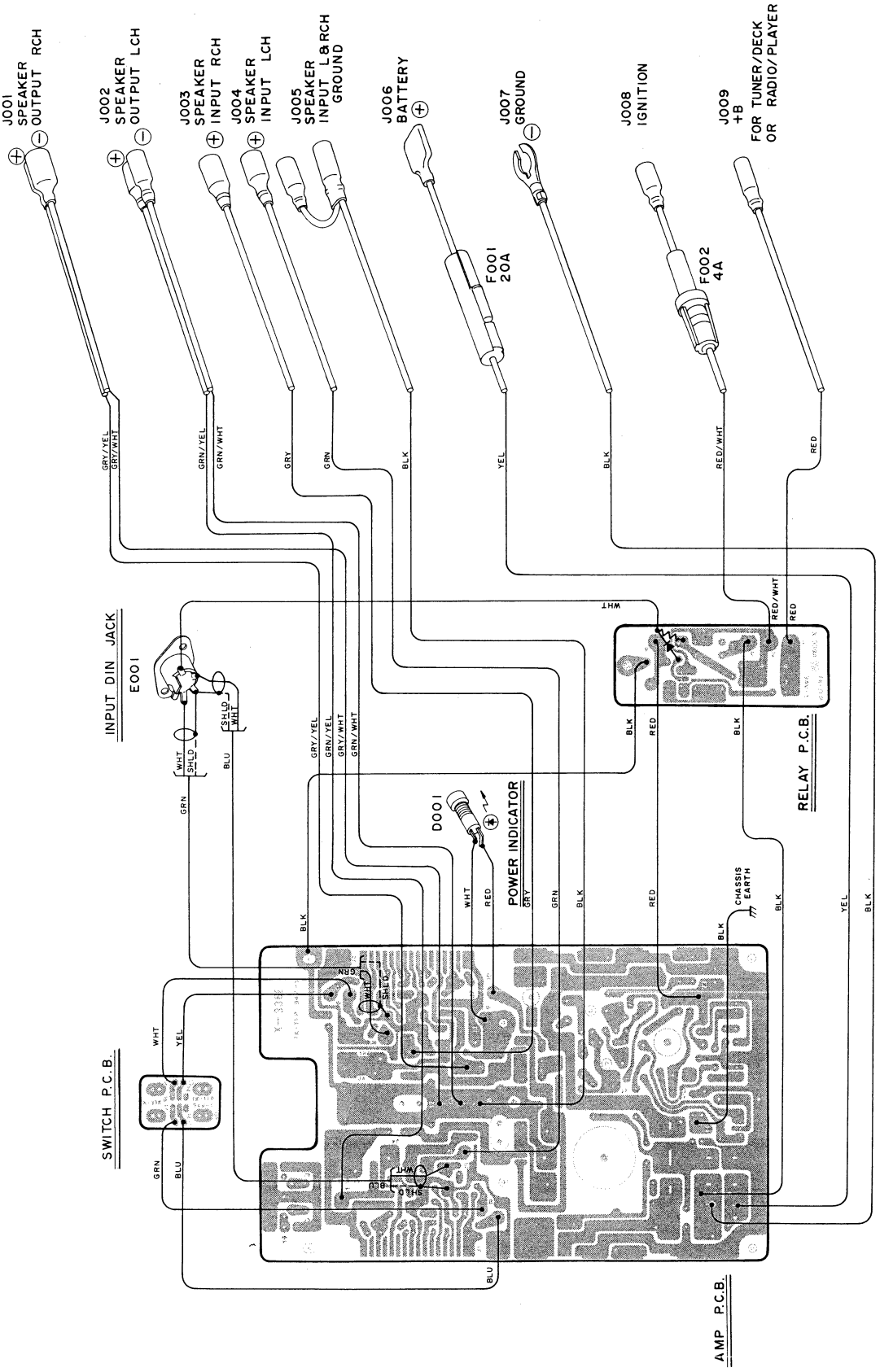
Top View

Amplifier P.C.Board

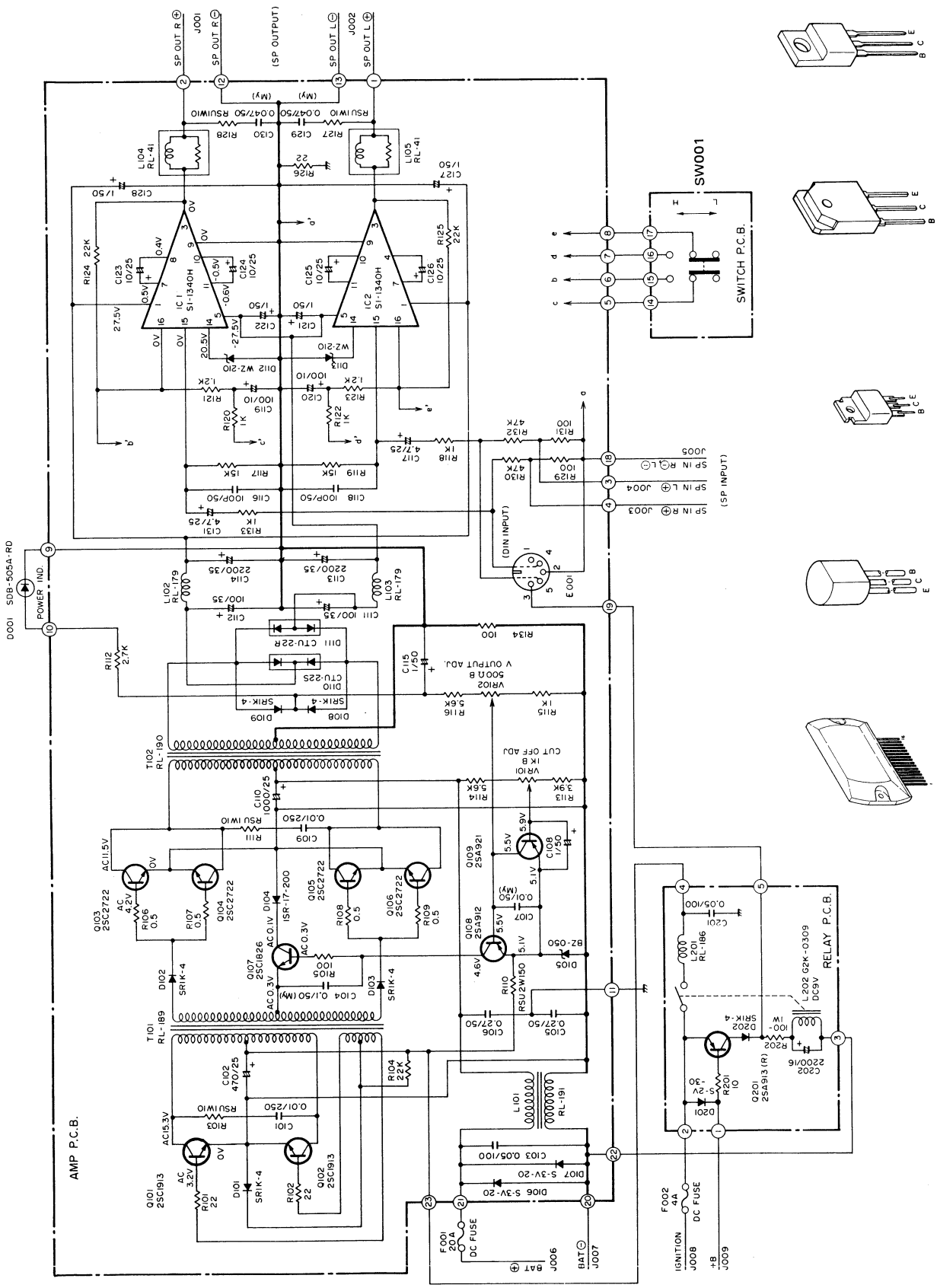


Bottom View

Wiring Diagram

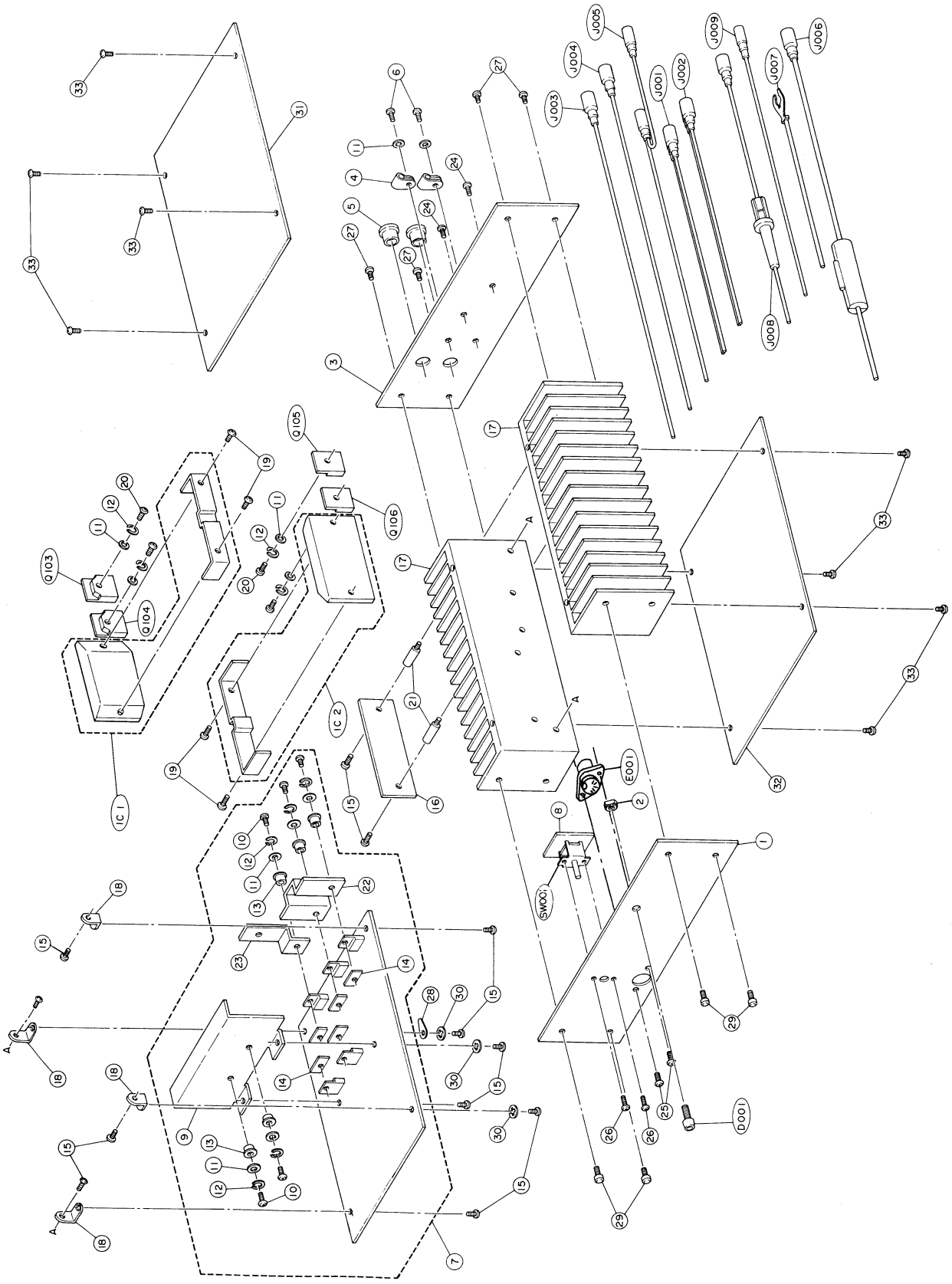


Schematic Diagram



NOTES:
1. All resistance values are in ohms. K=1,000
2. All capacitance values are in microfarads. P= $\frac{1}{1{,}000{,}000}$

Exploded View



Parts List

Symbol No.	Part No.	Description
Amplifier P.C. Board Assembly		
Transistors		
Q101	301201199	2SC1913
Q102	301201199	2SC1913
Q107	301201198	2SC1826
Q108	301001142	2SA912
Q109	301001145	2SA921
Diodes		
D101	300919024	Power, SR1K-4
D102	300919024	Power, SR1K-4
D103	300919024	Power, SR1K-4
D104	300919036	Power, 1SR-17-200
D105	300313034	Zener, BZ-050
D106	300919031	Power, S-3V-20
D107	300919031	Power, S-3V-20
D108	300919024	Power, SR1K-4
D109	300919024	Power, SR1K-4
D110	300919034	Power, CTU-22S
D111	300919035	Power, CTU-22R
D112	300313016	Zener, WZ-210
D113	300313016	Zener, WZ-210
Transformers, Filters & Jack		
T101	228641158	Driver Transformer (RL-189)
T102	228641159	Power Transformer (RL-190)
L101	228641160	Line Filter (RL-191)
L102	228641145	Choke Transformer (RL-179)
L103	228641145	Choke Transformer (RL-179)
L104	228641105	Speaker Coil (RL-41)
L105	228641105	Speaker Coil (RL-41)
Capacitors		
C101	440100985	Ceramic 0.01 μF 250V
C102	404470525	Electrolytic 470 μF 25V
C103	440500965	Ceramic 0.05 μF 100V
C104	452100833	Mylar 0.1 μF 50V
C105	440270835	Ceramic 0.27 μF 50V
C106	440270835	Ceramic 0.27 μF 50V
C107	452100933	Mylar 0.01 μF 50V
C108	404100750	Electrolytic 1 μF 50V
C109	440100985	Ceramic 0.01 μF 250V
C110	404100425	Electrolytic 1000 μF 25V
C111	404100535	Electrolytic 100 μF 35V
C112	404100535	Electrolytic 100 μF 35V
C113	404220435	Electrolytic 2200 μF 35V
C114	404220435	Electrolytic 2200 μF 35V
C115	404100750	Electrolytic 1 μF 50V
C116	440101133	Ceramic 100 pF 50V
C117	404470725	Electrolytic 4.7 μF 25V
C118	440101133	Ceramic 100 pF 50V
C119	404100510	Electrolytic 100 μF 10V
C120	404100510	Electrolytic 100 μF 10V
C121	404100750	Electrolytic 1 μF 50V
C122	404100750	Electrolytic 1 μF 50V
C123	404100625	Electrolytic 10 μF 25V
C124	404100625	Electrolytic 10 μF 25V
C125	404100625	Electrolytic 10 μF 25V
C126	404100625	Electrolytic 10 μF 25V
C127	404100750	Electrolytic 1 μF 50V
C128	404100750	Electrolytic 1 μF 50V
C129	452470933	Mylar 0.047 μF 50V
C130	452470933	Mylar 0.047 μF 50V
C131	404470725	Electrolytic 4.7 μF 25V
Resistors (All resistors are carbon films, ¼W, ±5% unless otherwise noted)		
R101	564220932	22 ohm ½W
R102	564220932	22 ohm ½W
R103	568100943	Metal 10 ohm 1W
R104	563220222	22K ohm
R105	564100032	100 ohm ½W
R106	564050832	0.5 ohm ½W
R107	564050832	0.5 ohm ½W
R108	564050832	0.5 ohm ½W
R109	564050832	0.5 ohm ½W
R110	568150053	Metal, 150 ohm 2W
R111	568100943	Metal, 10 ohm 1W
R112	564270132	2.7K ohm ½W
R113	563390122	3.9K ohm
R114	562560122	5.6K ohm
R115	563100122	1K ohm
R116	562560122	5.6K ohm
R117	563150222	15K ohm
R118	563100122	1K ohm

Symbol No.	Part No.	Description
R119	563150222	15K ohm
R120	563100122	1K ohm
R121	563120122	1.2K ohm
R122	563100122	1K ohm
R123	563120122	1.2K ohm
R124	563220222	22K ohm
R125	563220222	22K ohm
R126	564220932	22 ohm ½W
R127	568100943	Metal 10 ohm 1W
R128	568100943	Metal 10 ohm 1W
R129	564100032	100 ohm ½W
R130	563470222	47K ohm
R131	564100032	100 ohm ½W
R132	563470222	47K ohm
R133	563100122	1K ohm
R134	564100032	100 ohm ½W
VR101	510502151	Variable (Cut off Adj., 1KB)
VR102	510502185	Variable (V Out Adj., 500B)

Relay P.C. Board Assembly

C201	440500965	Cap., Ceramic 0.05μF 100V
C202	411220416	Cap., Electrolytic 2200 μF 16V
D201	300919031	Power Diode S-3V-20
D202	300919024	Power Diode SR1K-4
L201	228641149	Choke Coil
L202	240111245	Relay
Q201	301001143	Transistor, 2SA913
R201	440500965	Res., Carbon Film 10 ohm ¼W
R202	568100043	Res., Metal Film 100 ohm ¼W

Miscellaneous Parts

IC1	303452213	IC, SI-1340H
IC2	303452213	IC, SI-1340H
D001	300414019	LED, SDB-505A-RD
F001	340122120	Fuse, 20A
F002	341221400	Fuse, 4A

Symbol No.	Part No.	Description
J001		Assembly, Cord (Right Speaker)
J002		Assembly, Cord (Left Speaker)
J003	791001139	Assembly, Cord (Input, Right)
J004		Assembly, Cord (Input, Left)
J005		Assembly, Cord (Input, Ground)
J006		Assembly, Cord (Battery)
J007	791001140	Assembly, Cord (Ground)
J008		Assembly, Cord (Ignition)
J009		Assembly, Cord (+B)
Q103	301201197	Transistor, 2SC2722(Y)
Q104	301201197	Transistor, 2SC2722(Y)
Q105	301201197	Transistor, 2SC2722(Y)
Q106	301201197	Transistor, 2SC2722(Y)
SW001	611001284	Switch Lever, SLP-622
E001	625001118	5P Din Jack (0780)

General Assembly Parts

1	111911447	Panel, Front
2	———	Nut (Used with D001)
3	123011494	Panel, Rear
4	672200836	Cord, Clamp
5	672200811	Bush, Cord
6	726213010	Screw, Tapping (M3x10)
7	141810926	Assembly, Booster Panel
8	140800411	Panel, Switch
9	127012222	Bracket, Heat Sink
10	705213012	Screw, Tape Tite (M3x12)
11	770500003	Washer, Flat (φ3)
12	770500014	Washer, Spring (φ3)
13	99001111	Bush
14	770911144	Nut
15	705213006	Screw, Machine (M3x6)
16	141810928	Assembly, Relay Panel
17	127012246	Heat Sink
18	120012231	Bracket, Panel
19	705213015	Screw, Machine (Bind, M3x15)
20	705213010	Screw, Tape Tite (M3x10)
21	770911132	Spacer, Insert Screw
22	127012223	Bracket, Heat Sink
23	127012224	Bracket, Heat Sink
24	705223010	Screw, Machine (Bind, M3x10)
25	705223008	Screw, Machine (Bind, M3x8)
26	705222606	Screw, Machine (Bind, M2.6x6)
27	725223006	Screw, Tapping (M3x6)
28	770031334	Lug
29	770911223	Screw, Hex. Socket
30	770500014	Washer, Tooth Lock

Symbol No.	Part No.	Description
31	138011303	Cover, Top
32	124011304	Cover, Bottom
33	725223012	Screw, Tapping (M3x12)
	Packing Assembly Parts	
101	120012769	Bracket, Mounting
102	855001030	Sack, Polyethylene
103	120012871	Bracket, Mounting
104	340122120	Fuse, 20A
105	341221400	Fuse, 4A
106	770500049	Washer, Tooth Lock
107	770500050	Washer, Tooth Lock
108	770402210	Nut
109	725224012	Screw, Tapping (M4x12)
110	725223016	Screw, Tapping (M3x16)
111	770911235	Screw, Hex. Head (M4x10)
112	770911238	Screw, Hex. Head (M5x20)
113	770911237	Screw, Hex. Head (M5x10)
114	770911236	Screw Hex. Head (M5x20)
115	770500048	Washer, Flat (ϕ3)
116	120012872	Adaptor
117	855000609	Sack, Polyethylene (For Kit)
118	855000609	Sack, Polyethylene (For Accessories)
119	855003040	Sack, Polyethylene (For Set)
120	833201358	Owners Manual
121	855002332	Sack, Polyethylene
122	815001263	Tray, Packing
123	812001365	Carton, Packing (Individual)
124	————	Carton, Packing (Master)